



# cnSGW-C Metrics Reference

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## Overview

This section provides details of bulk statistics. Bulk statistics are divided in two types:

- Gauge - Snapshot value that shows the statistic at the reporting moment (for example, the number of current UE, current PDN connections). These statistics can increment or decrement continuously.
- Counter - Historic value accumulated over a period (for example, the total number of CSR requests received). These values get incremented except in the following two cases:
  - Rollover - where a counter exceeds its maximum value and rolls over to zero.
  - Reset - where a counter is manually reset to zero.

## sgw Metrics Reference

### CDL active sessions Category

#### **db\_records\_total**

Description: CDL active sessions. each label is prefix with SGW.

Sample Query: `avg(db_records_total{service_name=\"datastore-ep\"})by(session_type)`

Labels:

- Label: `emergency_call`

Label Description: Number of emergency calls in cnSGW

Example: `SGW:emergency_call:true`

- Label: `rat_type`  
Label Description: Rat type of sessions. For cnSGW there is only one `rat_type` EUTRAN  
Example: `SGW:rat_type:EUTRAN`
- Label: `state`  
Label Description: Number of active or idle subscriber state.  
Example: `SGW:state:active` , `SGW:state:idle`
- Label: `pdn_active`  
Label Description: Number of active PDNs for that subscriber.  
Example: `SGW:pdn_active:1` , `SGW:pdn_active:2`
- Label: `bearer_active`  
Label Description: Number of active Bearers for that subscriber.  
Example: `SGW:bearer_active:1` , `SGW:bearer_active:2`
- Label: `apn`  
Label Description: Number of subscribers per apn.  
Example: `SGW:apn:internet2` , `SGW:apn:ims2`
- Label: `colocated`  
Label Description: Number of colocated or non-colocated subscriber.  
Example: `SGW:colocated:true` , `SGW:colocated:false`
- Label: `total`  
Label Description: Total number of sessions in CDL  
Example: `total`

## CDR container operations Category

### **sgw\_charging\_cdr\_container**

Description: CDR container operations total

Sample Query:

```
sgw_charging_cdr_container{gr_instance_id="1",action="close_final",change_condition="recordClosure",pdn_type="ipv4v6",pdn_plmn_type="visitor"}
```

Labels:

- Label: `gr_instance_id`  
Label Description: GR instance ID  
Example: 1, 2
- Label: `action`  
Label Description: Type of CDR operation

Example: close\_final, close\_interim, open

- Label: `change_condition`

Label Description: Reason for container close operation

Example: recordClosure,qoSChange,userLocationChange,apnAmbrChange

- Label: `event`

Label Description: Event that triggered CDR action

Example: StartAccounting,SGWChange,NormalRelease etc.

- Label: `pdn_type`

Label Description: The `pdn_type` indicates the address type of PDN

Example: ipv4, ipv6, ipv4v6, unknown

- Label: `pdn_plmn_type`

Label Description: The `pdn_plmn_type` indicates the plmn type

Example: homer,visitor,roamer,unknown

## CDR operations Category

### **sgw\_charging\_cdr**

Description: CDR operations total

Sample Query:

```
sgw_charging_cdr{gr_instance_id="1",action="close_final",cause="servingNodeChange",pdn_type="ipv4v6",pdn_plmn_type="visitor"}
```

Labels:

- Label: `gr_instance_id`

Label Description: GR instance ID

Example: 1, 2

- Label: `action`

Label Description: Type of CDR operation

Example: close\_final, close\_interim, open

- Label: `cause`

Label Description: Reason for CDR close operation

Example: maxChangeCond,servingNodeChange,volumeLimit,LTEservingNodeChange,abnormalRelease etc.

- Label: `event`

Label Description: Event that triggered CDR action

Example: StartAccounting,SGWChange,NormalRelease etc.

- Label: `pdn_type`

Label Description: The `pdn_type` indicates the address type of PDN

Example: `ipv4, ipv6, ipv4v6, unknown`

- Label: `pdn_plmn_type`

Label Description: The `pdn_plmn_type` indicates the plmn type

Example: `homer,visitor,roamer,unknown`

## SGW usage report stats Category

### **sgw\_sx\_usage\_report\_stats**

Description: Total Sx Session usage reports processed

Sample Query: `sgw_sx_usage_report_stats{gr_instance_id="1",status="success"}`

Labels:

- Label: `gr_instance_id`

Label Description: GR instance ID

Example: `1, 2`

- Label: `status`

Label Description: Processing status

Example: `success, ur_dropped_invalid_urr_seqNo, ur_dropped_bearer_not_found, ur_dropped_urrInfo_not_found, ur_dropped_acct_ctxt_not_found, ur_dropped_bearer_not_connected`

## SGW Bearer Level counters Category

### **sgw\_bearer\_counters**

Description: Bearer Level counters

Sample Query: `sgw_bearer_counters{gr_instance_id="1",status="active",qci="5"}`

Labels:

- Label: `gr_instance_id`

Label Description: GR instance ID

Example: `1, 2`

- Label: `status`

Label Description: Bearer Status

Example: `active`

- Label: `qci`

Label Description: Bearer QCI

Example: 1, 2, 3, 4, 5, 6, 7, 8, 9, 65, 66, 69, 70, 80, 82, 83, non-std-qci

## SGW Bearer Level statistics Category

### sgw\_bearer\_stats

Description: Bearer and Qci level statistics

Sample Query:

```
sgw_bearer_stats{gr_instance_id="1",status="attempted",qci="5",numBearer="2"}
```

Labels:

- Label: `gr_instance_id`

Label Description: GR instance ID

Example: 1, 2

- Label: `status`

Label Description: Bearer Status

Example: attempted, setup, release, modified

- Label: `qci`

Label Description: Bearer QCI

Example: 1, 2, 3, 4, 5, 6, 7, 8, 9, 65, 66, 69, 70, 80, 82, 83, non-std-qci

## SGW CDL update stats Category

### sgw\_cdl\_update\_stats

Description: SGW CDL update Counter

Sample Query:

```
sgw_cdl_update_stats{gr_instance_id="1",txn_type="S11ModifyBearerReqInitialAttach",status="success",cdl_update_type="full_cdl_update"}
```

Labels:

- Label: `gr_instance_id`

Label Description: GR instance ID

Example: 1, 2

- Label: `txn_type`

Label Description: Transaction type

Example: ClearSubscriberSgwReq, N4SessionReportReq, NIntSgwSelfTxnBearerDisconnect, NIntSgwSelfTxnPagingStatusReq, NIntSgwSelfTxnPdnDisconnect, NIntSgwSelfTxnSxaSessRptReq, NSgwInternalTimerNotification, NSgwTimerNotificationReq, ReleaseAccessBearerReq, S11CreateSessReq, S11DeleteSessReq, S11ModifyBearerReq, S11ModifyBearerReqInitialAttach, S11ModifyBearerReqInterSystemHo, S11ModifyBearerReqIntraMMEX2S1HoNoSgwChange, S11ModifyBearerReqList, S11ModifyBearerReqListInterSystemHo,

S11ModifyBearerReqListIntraMMEX2S1HoNoSgwChange, S11ModifyBearerReqListOnlyForUliChange, S11ModifyBearerReqListS1HOSgwRelocation, S11ModifyBearerReqListServiceRequest, S11ModifyBearerReqListUnknownMBR, S11ModifyBearerReqOnlyForUliChange, S11ModifyBearerReqS1HOSgwRelocation, S11ModifyBearerReqServiceRequest, S11ModifyBearerReqUnknownMBR, S5CreateBearerReq, S5DeleteBearerReq, S5S8BearerResourceCmd, S5UpdateBearerReq, S11SuspendNotf, S11ResumeNotf

- Label: `status`

Label Description: Indicate whether transaction is success, aborted or timeout

Example: success, collision\_abort, timeout

- Label: `cdl_update_type`

Label Description: Indicate CDL update type

Example: partial\_cdl\_update, full\_cdl\_update, no\_cdl\_update

## SGW Collision Stats Category

### `sgw_collision_stats`

Description: SGW Collision counters

Sample Query: `sgw_collision_stats{gr_instance_id=\"1\",action_type=\"abort\",new_proc=\"PDN Disconnect - UE initiated\",old_proc=\"Create Bearer\"}`

Labels:

- Label: `gr_instance_id`

Label Description: GR instance ID

Example: 1, 2

- Label: `action_type`

Label Description: The pre-defined action taken to handle the collision. The action can be

Example: abort\_new, abort\_old, discard\_new, discard\_old

- Label: `new_proc`

Label Description: The new procedure and message type"

Example: Unknown, PDN Setup, PDN Modify, Create Bearer, Update Bearer, Delete Bearer, PDN Disconnect - UE initiated, PDN Disconnect - Admin initiated, PDN Disconnect - PGW initiated, PDN Disconnect - Self initiated, Modify Bearer Command, Delete Bearer Command, Release Access Bearer, Downlink Data Notification, Clear Subscriber - S5e Recovery Initiated, Clear Subscriber - Sx Recovery Initiated, Clear Subscriber - S11 Recovery Initiated, Clear Subscriber - S5e Path Failure Initiated, Clear Subscriber - Sx Path Failure Initiated, Clear Subscriber - S11 Path Failure Initiated, Clear Subscriber - S11 Path Failure Local Purge Initiated, Clear Subscriber - S11 Recovery Local Purge Initiated, Clear Subscriber - S5e Path Failure Local Purge Initiated, Clear Subscriber - S5e Recovery Local Purge Initiated, Clear Subscriber - Sx Association Release Initiated, Change Notification, PDN Disconnect - Upf Graceful Termination Initiated, PDN Disconnect - S5u Gtpu Error Local Purge Initiated, PDN Disconnect - S1u Gtpu Session replacement Initiated, PDN Disconnect - S5u Gtpu Session replacement Initiated, PDN Disconnect - S1u Gtpu Error Local Purge Initiated, PDN Disconnect - S5u Gtpu Error Local Purge

Initiated, PDN Disconnect - S1u Gtpu Session replacement Local Purge Initiated, PDN Disconnect - S5u Gtpu Session replacement Local Purge Initiated, Clear Subscriber - Sx Session Idle Timeout Initiated, Bearer Disconnect - S1u Gtpu Error Local Purge Initiated, Bearer Disconnect - S5u Gtpu Error Local Purge Initiated, Bearer Disconnect - S1u Gtpu Session replacement Local Purge Initiated, Bearer Disconnect - S5u Gtpu Session replacement Local Purge Initiated, Bearer Disconnect - S5u Gtpu Error Local Purge Initiated, Bearer Disconnect - S1u Gtpu Session replacement Initiated, Bearer Disconnect - S5u Gtpu Session replacement Initiated, Clear Subscriber - S1u Gtpu Path Failure Initiated, Clear Subscriber - S5u Gtpu Path Failure Initiated, Clear Subscriber - S1u Gtpu Path Failure Local Purge Initiated, Clear Subscriber - S5u Gtpu Path Failure Local Purge Initiated, Bearer Disconnect - S1u Gtpu Path Failure Initiated, Bearer Disconnect - S5u Gtpu Path Failure Initiated, Bearer Disconnect - S1u Gtpu Path Failure Local Purge Initiated, Bearer Disconnect - S5u Gtpu Path Failure Local Purge Initiated

- Label: `old_proc`

Label Description: Indicates the ongoing procedure at eGTP-C when a new message arrived at the interface which caused the collision. The Msg Type in brackets specifies which message triggered this ongoing procedure"

Example: Unknown, PDN Setup, PDN Modify, Create Bearer, Update Bearer, Delete Bearer, PDN Disconnect - UE initiated, PDN Disconnect - Admin initiated, PDN Disconnect - PGW initiated, PDN Disconnect - Self initiated, Modify Bearer Command, Delete Bearer Command, Release Access Bearer, Downlink Data Notification, Clear Subscriber - S5e Recovery Initiated, Clear Subscriber - Sx Recovery Initiated, Clear Subscriber - S11 Recovery Initiated, Clear Subscriber - S5e Path Failure Initiated, Clear Subscriber - Sx Path Failure Initiated, Clear Subscriber - S11 Path Failure Initiated, Clear Subscriber - S11 Path Failure Local Purge Initiated, Clear Subscriber - S11 Recovery Local Purge Initiated, Clear Subscriber - S5e Path Failure Local Purge Initiated, Clear Subscriber - S5e Recovery Local Purge Initiated, Clear Subscriber - Sx Association Release Initiated, Change Notification, PDN Disconnect - Upf Graceful Termination Initiated, PDN Disconnect - S5u Gtpu Error Local Purge Initiated, PDN Disconnect - S1u Gtpu Session replacement Initiated, PDN Disconnect - S5u Gtpu Session replacement Initiated, PDN Disconnect - S1u Gtpu Error Local Purge Initiated, PDN Disconnect - S5u Gtpu Error Local Purge Initiated, PDN Disconnect - S1u Gtpu Session replacement Local Purge Initiated, PDN Disconnect - S5u Gtpu Session replacement Local Purge Initiated, Clear Subscriber - Sx Session Idle Timeout Initiated, Bearer Disconnect - S1u Gtpu Error Local Purge Initiated, Bearer Disconnect - S5u Gtpu Error Local Purge Initiated, Bearer Disconnect - S1u Gtpu Session replacement Local Purge Initiated, Bearer Disconnect - S5u Gtpu Session replacement Local Purge Initiated, Bearer Disconnect - S5u Gtpu Error Local Purge Initiated, Bearer Disconnect - S1u Gtpu Session replacement Initiated, Bearer Disconnect - S5u Gtpu Session replacement Initiated, Clear Subscriber - S1u Gtpu Path Failure Initiated, Clear Subscriber - S5u Gtpu Path Failure Initiated, Clear Subscriber - S1u Gtpu Path Failure Local Purge Initiated, Clear Subscriber - S5u Gtpu Path Failure Local Purge Initiated, Bearer Disconnect - S1u Gtpu Path Failure Initiated, Bearer Disconnect - S5u Gtpu Path Failure Initiated, Bearer Disconnect - S1u Gtpu Path Failure Local Purge Initiated, Bearer Disconnect - S5u Gtpu Path Failure Local Purge Initiated

## SGW DDN Stats Category

### `sgw_ddn_stats`

Description: Total SGW DDN Stats

Sample Query: `sgw_ddn_stats{gr_instance_id="1",ddn_stats_type="high_priority_initiated"}`

Labels:

- Label: `gr_instance_id`

Label Description: GR instance ID

Example: 1, 2

- Label: `ddn_stats_type`

Label Description: The pre-defined `ddn_stats_type`

Example: `high_priority_initiated`, `high_priority_suppressed`, `throttled`, `delayed`, `control_proc_triggered`, `data_triggered`, `gtpu_err_ind_triggered`

## SGW PDN Disconnect Stats Category

### `sgw_pdn_disconnect_stats`

Description: SGW PDN disconnects counters

Sample Query:

```
sgw_pdn_disconnect_stats{gr_instance_id="1",pdn_type="ipv4v6",rat_type="EUTRAN",reason="mme_init_pdn_sess_rel"}
```

Labels:

- Label: `gr_instance_id`

Label Description: GR instance ID

Example: 1, 2

- Label: `pdn_type`

Label Description: The `pdn_type` indicates the address type of PDN

Example: `ipv4`, `ipv6`, `ipv4v6`, `unknown`

- Label: `rat_type`

Label Description: The `rat_type` indicates which Radio Access Technology is currently serving the UE"

Example: `EUTRAN`

- Label: `reason`

Label Description: The reason indicates the disconnect reason associate with the `pdn`"

Example: `admin_init_disconnect`, `remote_init_disconnect`, `pgw_init_pdn_sess_rel`, `mme_init_pdn_sess_rel`, `sx_request_rejected`, `sx_context_not_found`, `sx_msg_invalid_length`, `sx_no_resource_available`, `sx_no_response`, `sx_reason_unknown`, `no_response`, `s5_context_not_found`, `s11_context_not_found`, `local_disconnect`, `no_cause`, `userplane_info_not_available`, `setup_timeout`, `admin_init_local_purge`, `db_conflict_init_disconnect`, `context_replacement`, `userplane_session_idle_timeout`, `userplane_requested_graceful_termination`, `s1u_gtpu_error`, `s5u_gtpu_error`, `s1u_gtpu_session_replacement`, `s5u_gtpu_session_replacement`, `sx_recovery`, `sx_path_failure`, `s11_path_failure`, `s5e_path-failure`, `s11_path_failure_local_purge`, `s5e_path_failure_local_purge`, `s5e_recovery`, `s11_recovery`, `s5e_recovery_local_purge`, `s11_recovery_local_purge`, `s1u_gtpu_path_failure`, `s5u_gtpu_path_failure`, `stale_session_init_disconnect`, `mop_offline`



## SGW PDN EMPS Counter Category

### **sgw\_pdn\_emps\_counter**

Description: Total number of active emps session

Sample Query: `sgw_pdn_emps_counters{gr_instance_id=\"1\",status=\"active\"}`

Labels:

- Label: `gr_instance_id`  
Label Description: GR instance ID  
Example: 1, 2
- Label: `status`  
Label Description: Active emps session  
Example: active

## SGW PDN EMPS Stats Category

### **sgw\_pdn\_emps\_stats**

Description: Total number of emps session

Sample Query: `sgw_pdn_emps_stats{gr_instance_id=\"1\",status=\"release\"}`

Labels:

- Label: `gr_instance_id`  
Label Description: GR instance ID  
Example: 1, 2
- Label: `status`  
Label Description: Status of emps session  
Example: setup, release

## SGW PDN Level Counters Category

### **sgw\_pdn\_counters**

Description: Pdn level counters

Sample Query:

`sgw_pdn_counters{ratType=\"EUTRAN\",pdnConnType=\"ipv4\",plmnType=\"homer\",grInstanceID=\"1\"}`

Labels:

- Label: `rat_type`  
Label Description: The `rat_type` indicates which Radio Access Technology is currently serving the UE"

Example: EUTRAN

- Label: `pdn_type`

Label Description: The `pdn_type` indicates the address type of PDN

Example: ipv4, ipv6, ipv4v6, unknown

- Label: `pdn_plmn_type`

Label Description: It indicates the plmn type for the subscriber

Example: homer, visitor, roamer, unknown

- Label: `gr_instance_id`

Label Description: GR instance ID

Example: 1, 2

## SGW PDN Level statistics Category

### **sgw\_pdn\_stats**

Description: Pdn level statistics

Sample Query:

```
sgw_pdn_stats{ratType="EUTRAN",status="setup",pdnConnType="ipv4",plmnType="homer",grInstanceID="1"}
```

Labels:

- Label: `rat_type`

Label Description: The `rat_type` indicates which Radio Access Technology is currently serving the UE"

Example: EUTRAN

- Label: `status`

Label Description: Subscriber status

Example: setup, release

- Label: `pdn_type`

Label Description: The `pdn_type` indicates the address type of PDN

Example: ipv4, ipv6, ipv4v6, unknown

- Label: `pdn_plmn_type`

Label Description: It indicates the plmn type for the subscriber

Example: homer, visitor, roamer, unknown

- Label: `gr_instance_id`

Label Description: GR instance ID

Example: 1, 2

## SGW Procedure Category

### sgw\_service\_stats

Description: SGW call flow procedure counters

Sample Query: `sgw_service_stats{gr_instance_id="1",sgw_procedure_type="create_bearer"}`

Labels:

- Label: `gr_instance_id`

Label Description: GR instance ID

Example: 1, 2

- Label: `sgw_procedure_type`

Label Description: The procedure type associated with the call flow procedure

Example: `initial_attach`, `secondary_pdn_creation`, `mme_initiated_deletion`, `pgw_initiated_deletion`, `update_bearer`, `create_bearer`, `downlink_data_notification`, `downlink_data_notification_retry`, `pgw_initiated_dedicated_bearer_deletion`, `release_access_bearer`, `inter_mme_intra_sgw_idle_mode`, `intra_mme_intra_sgw_idle_mode`, `service_request`, `modify_bearer_req_initial_attach`, `inter_mme_handover`, `intra_mme_handover`, `inter_system_handover`, `modify_bearer_req_uli_tz_change`, `admin_initiated_deletion`, `s5_cnf_initiated_deletion`, `s11_cnf_initiated_deletion`, `sx_cnf_initiated_deletion`, `local_initiated_deletion`, `setup_timeout_deletion`, `create_indirect_data_forwarding_tunnel`, `delete_indirect_data_forwarding_tunnel`, `indirect_data_forwarding_tunnel_guard_timer_expiry`, `db_conflict_initiated_deletion`, `s1_sgw_relocation_attach`, `context_replacement`, `modify_bearer_command`, `delete_bearer_command`, `inter_system_handover_attach`, `x2_gngp_to_lte_relocation_attach`, `s1_gngp_to_lte_relocation_attach`, `inter_system_handover`, `modify_bearer_req_x2_gngp_to_lte_relocation`, `modify_bearer_req_s1_gngp_to_lte_relocation`, `change_notification`, `upf_sess_idle_timeout_deletion`, `upf_sess_idle_timeout_deletion`, `s5u_gtpu_error_initiated`, `s1u_gtpu_session_replacement_initiated`, `s5u_gtpu_session_replacement_initiated`, `s1u_gtpu_path_failure_initiated`, `s5u_gtpu_path_failure_initiated`, `s5u_gtpu_error_initiated_bearer_deletion`, `s1u_gtpu_error_local_purge_initiated_bearer_deletion`, `s5u_gtpu_error_local_purge_initiated_bearer_deletion`, `s1u_gtpu_session_replacement_initiated_bearer_deletion`, `s5u_gtpu_session_replacement_initiated_bearer_deletion`, `s1u_gtpu_session_replacement_local_purge_initiated_bearer_deletion`, `s5u_gtpu_session_replacement_local_purge_initiated_bearer_deletion`, `s1u_gtpu_path_failure_initiated_bearer_deletion`, `s5u_gtpu_path_failure_initiated_bearer_deletion`, `s1u_gtpu_path_failure_local_purge_initiated_bearer_deletion`, `s5u_gtpu_path_failure_local_purge_initiated_bearer_deletion`, `stale_session_initiated_deletion`, `dbcfi_cnf_local_purge_initiated_bearer_deletion`, `suspend_notification`, `resume_notification`, `pdn_state_sync`

- Label: `interface`

Label Description: The interface type associated with the call flow procedure

Example: `interface_sgw_ingress`, `interface_sgw_egress`

- Label: `status`

Label Description: The status of the call flow procedure. In case of procedure failure it can indicate whether the message was rejected or was the message discarded.

Example: attempted, success, failure, rejected, discarded

- Label: `fail_reason`

Label Description: High level reason for failure status. For success and attempted it will be Empty

Example: `gtp_validation_fail`, `gtp_cause_fail`, `gtp_peer_not_responding`, `sx_validation_fail`, `sx_cause_fail`, `sx_peer_not_responding`, `timeout`, `internal_failure`, `userplane_selection_fail`, `gtp_partial_fail`, `sx_oci_throttling_reject`, `collision_abort`, `collision_discard`, `gtp_entity_in_congestion`

- Label: `sub_fail_reason`

Label Description: Incoming negative GTP/Sx Cause or type of TIMEOUT that led to the failure. For other failures it will be Empty

Example: `invalid_msg_format`, `version_not_supported`, `service_not_supported`, `imsi_imei_not_known`, `preferred_pdn_type_unsupported`, `mand_ie_missing`, `cond_ie_missing`, `invalid_len`, `mand_ie_incorrect`, `no_resource_available`, `temp_rejected_due_to_handover_in_progress`, `peer_not_responding`, `context_not_found`, `unable_to_page_ue`, `unable_to_page_ue_due_to_suspension`, `ue_already_reattached`, `temp_rejected_due_to_ho_in_progress`, `sx_req_rejected`, `invalid_fw_policy`, `invalid_fteid_alloc_opt`, `rule_creation_mod_fail`, `no_estab_sx_assoc`, `system_failure`, `pcf_entity_in_congestion`, `procedure_timeout`, `ipc_timeout`, `transaction_timeout`, `missing_or_unknown_apn`

- Label: `reject_cause`

Label Description: In case of procedure failure it will be used to indicate the outgoing GTP/Sx cause being sent to the peer. In other cases it will be Empty.

Example: `invalid_msg_format`, `version_not_supported`, `invalid_len`, `mandatory_ie_missing`, `conditional_ie_missing`, `mandatory_ie_incorrect`, `service_not_supported`, `imsi_imei_not_known`, `preferred_pdn_type_unsupported`, `system_failure`, `no_resources_available`, `temp_rejected_due_to_handover_in_progress`, `service_denied`, `peer_not_responding`, `context_not_found`, `request_rejected`, `missing_or_unknown_apn`, `entity_in_congestion`

- Label: `svc_to_svc`

Label Description: In case of gtp bypass, i.e. service to service communication this is set as True, else False

Example: True, False

## SGW Resource Management stats Category

### **sgw\_resource\_mgmt\_stats**

Description: It gives information about number of allocated/deallocated ID's from resource manager

Sample Query:

```
sgw_resource_mgmt_stats{label_id_type=\"id_alloc\",status=\"success\",grInstanceID=\"1\"}
```

Labels:

- Label: `label_id_type`

Label Description: The `label_id_type` indicates if its ID allocation or deallocation"

Example: `id_alloc`, `id_dealloc`

- Label: `status`  
Label Description: The status of ID allocation/deallocation  
Example: attempted, success, failure
- Label: `gr_instance_id`  
Label Description: GR instance ID  
Example: 1, 2

## SGW Sx session report stats Category

### **sgw\_sx\_session\_report\_stats**

Description: Total Sx Session-Report-Requests processed

Sample Query:

```
sgw_sx_session_report_stats(gr_instance_id="1",sx_session_report_type="USAR",sx_usage_report_status="success")
```

Labels:

- Label: `gr_instance_id`  
Label Description: GR instance ID  
Example: 1, 2
- Label: `sx_session_report_type`  
Label Description: Type of the session-report  
Example: USAR, DLDR, ERIR, UPIR, SPTER, SRIR, GTER, UPRR
- Label: `sx_usage_report_status`  
Label Description: Processing status of usage report  
Example: success, failure

## SGW Timer Stats Category

### **sgw\_tmr\_stats**

Description: SGW Timer Counter

Sample Query:

```
sgw_tmr_stats(gr_instance_id="1",timer_type="internal_ddn_delay",status="start")
```

Labels:

- Label: `gr_instance_id`  
Label Description: GR instance ID  
Example: 1, 2

- Label: `timer_type`  
Label Description: Timer type  
Example: `internal_ddn_delay`
- Label: `status`  
Label Description: Status of timer  
Example: `start, stop, expired`

## SGW UE Disconnect Stats Category

### `sgw_ue_disconnect_stats`

Description: SGW UE disconnects counters

Sample Query: `sgw_ue_disconnect_stats{gr_instance_id="1",reason="admin_init_disconnect"}`

Labels:

- Label: `gr_instance_id`  
Label Description: GR instance ID  
Example: `1, 2`
- Label: `reason`  
Label Description: The reason indicates the disconnect reason associated with the UE  
Example: `admin_init_disconnect, remote_init_disconnect, pgw_init_pdn_sess_rel, mme_init_pdn_sess_rel, sx_request_rejected, sx_context_not_found, sx_msg_invalid_length, sx_no_resource_available, sx_no_response, sx_reason_unknown, no_response, s5_context_not_found, s11_context_not_found, local_disconnect, no_cause, userplane_info_not_available, db_conflict_init_disconnect, userplane_session_idle_timeout, userplane_requested_graceful_termination, s1u_gtpu_error, s5u_gtpu_error, s1u_gtpu_session_replacement, s5u_gtpu_session_replacement, sx_recovery, sx_path_failure, s11_path_failure, s5e_path-failure, s11_path_failure_local_purge, s5e_path_failure_local_purge, s5e_recovery, s11_recovery, s5e_recovery_local_purge, s11_recovery_local_purge, s1u_gtpu_path_failure, s5u_gtpu_path_failure, stale_session_init_disconnect, mop_offline`

## SGW UE Level Counters Category

### `sgw_ue_counters`

Description: UE level counter

Sample Query: `sgw_ue_counters{ratType="EUTRAN",state="idle",grInstanceID="1"}`

Labels:

- Label: `rat_type`  
Label Description: The `rat_type` indicates which Radio Access Technology is currently serving the UE"

Example: EUTRAN

- Label: `state`

Label Description: Subscriber state

Example: `idle`, `connected`

- Label: `gr_instance_id`

Label Description: GR instance ID

Example: 1, 2

## SGW UE Level statistics Category

### **sgw\_ue\_stats**

Description: UE level statistics

Sample Query: `sgw_ue_stats{ratType="EUTRAN",status="setup",grInstanceID="1"}`

Labels:

- Label: `rat_type`

Label Description: The `rat_type` indicates which Radio Access Technology is currently serving the UE"

Example: EUTRAN

- Label: `status`

Label Description: Subscriber status

Example: `setup`, `release`

- Label: `gr_instance_id`

Label Description: GR instance ID

Example: 1, 2

## SGW Volte session counter Category

### **sgw\_voltesession\_counter**

Description: Total Sx Session usage reports processed

Sample Query: `sgw_voltesession_counter{gr_instance_id="1",state="VolteSession"}`

Labels:

- Label: `gr_instance_id`

Label Description: GR instance ID

Example: 1, 2

- Label: `state`

Label Description: Session type

Example: VolteSession

## SGW callflow optimization stats Category

### **sgw\_callflow\_optimization\_stats**

Description: SGW Callflow Optimization Counter

Sample Query:

```
sgw_callflow_optimization_stats{gr_instance_id="1",type="suppress_uli_reporting_on_s5"}
```

Labels:

- Label: `gr_instance_id`  
Label Description: GR instance ID  
Example: 1, 2
- Label: `type`  
Label Description: Callflow optimization type  
Example: `suppress_uli_reporting_on_s5`, `rab_prepone_ack`

## gtpc-ep Metrics Reference

### GTCP BGP Routed Count Stats Category

#### **gtpc\_app\_bgp\_routes\_count**

Description: BGP routes add counter

Sample Query: `'gtpc_app_bgp_routes_count{status="success"}'`

Labels:

- Label: `status`  
Label Description: status  
Example: success, failed
- Label: `gr_instance_id`  
Label Description: GR instance ID  
Example: 1, 2



## GTPC Roaming Peer Path Mgmt Stats Category

### **gtpc\_roaming\_peer\_path\_mgmt**

Description: GTPC Roaming Peer Path Mgmt Stats

Sample Query: 'gtpc\_roaming\_peer\_path\_mgmt{service\_name="gtpc-ep",status="suppressed"}'

Labels:

- Label: `gtpc_peer_type`  
Label Description: Gtpc Peer type  
Example: ROAMER, HOMER, VISITOR
- Label: `interface_type`  
Label Description: Gtpc Interface type  
Example: S5, S11, S5E, S2B, S8
- Label: `gtpc_msg_type`  
description: Gtpc Message type  
Example: NumEchoMsg, NumControlMsg
- Label: `status`  
Label Description: Status  
Example: suppressed
- Label: `gr_instance_id`  
Label Description: GR instance ID  
Example: 1, 2

## GTPC Short Circuit Map Count Category

### **gtpc\_short\_circuit\_map\_count**

Description: GTPC Short Circuit Map operation counter

Sample Query: 'gtpc\_short\_circuit\_map\_count{message\_name="TxModifyBearerRes"}'

Labels:

- Label: `message_name`  
Label Description: Message Name  
Example: TxCreateBearerReq, TxUpdateBearerReq, TxDeleteBearerReq, TxModifyBearerRes, TxDeleteSessRsp, TxCreateSessionRsp, RecordExpired
- Label: `gtpc_short_circuit_map_operation`  
Label Description: Gtpc short circuit counter type

Example: increment, decrement

- Label: `gtpc_short_circuit_map_teid_changed`

Label Description: Gtpc short circuit teid cache operation type

Example: added, updated, deleted

- Label: `gr_instance_id`

Label Description: GR instance ID

Example: 1, 2

## GTPC Short Circuit Message Stats Category

### **`gtpc_msg_short_circuit_stats`**

Description: GTPC Short Circuit MBResp Stats

Sample Query: `'gtpc_msg_short_circuit_stats{gtpc_msg_type="RxModifyBearerReq"}'`

Labels:

- Label: `gtpc_msg_type`

Label Description: Gtpc Message type

Example: RxModifyBearerReq, SkippingShortCircuit

- Label: `gtpc_short_circuit_category`

Label Description: Category

Example: WithServingNetwork, WithIndication, WithBearerContext, MBREventExpired, SendSCMBResp, GetSCMBRespFailed, LastSequenceNumberSame

- Label: `interface_type`

Label Description: Gtpc Interface type

Example: S5, S11, S5E, S2B, S8

## Processing Time of SMF GTPC Messages Category

### **`gtpc_msg_seconds`**

Description: Time taken for GTPC message processing

Sample Query: `'gtpc_msg_seconds{message_name="S5S8_MSG_CREATE_SESSION_REQUEST"}'`

Labels:

- Label: `message_name`

Label Description: Message Name

Example: S5S8\_MSG\_CREATE\_SESSION\_REQUEST, S5S8\_MSG\_CREATE\_SESSION\_RESPONSE, S5S8\_MSG\_MODIFY\_BEARER\_REQUEST, S5S8\_MSG\_MODIFY\_BEARER\_RESPONSE,

S5S8\_MSG\_DELETE\_BEARER\_REQUEST, S5S8\_MSG\_DELETE\_BEARER\_RESPONSE,  
S5S8\_MSG\_DELETE\_SESSION\_REQUEST, S5S8\_MSG\_DELETE\_SESSION\_RESPONSE

- Label: `message_direction`  
Label Description: Direction  
Example: inbound, outbound
- Label: `status`  
Label Description: Status  
Example: no\_rsp\_received\_tx, accepted
- Label: `transport_type`  
Label Description: Transport Type  
Example: origin, retransmitted
- Label: `interface_type`  
Label Description: Gtpc Interface type  
Example: S5, S11, S5E, S2B, S8
- Label: `gr_instance_id`  
Label Description: GR instance ID  
Example: 1, 2

## Processing time of GTPC messages Category

### **gtpc\_app\_events\_seconds**

Description: Total time taken by GTPC messages

Sample Query: `'gtpc_app_events_seconds{event_type="csreq}'`

Labels:

- Label: `event_type`  
Label Description: Gtpc Event type  
Example: csreq, mbreq, cbreq, ubreq, dbreq, dsreq, rabreq, cidftreq, didftreq, changenotfreq, mbreqlist
- Label: `interface_type`  
Label Description: Gtpc Interface type  
Example: S5, S11, S5E, S2B, S8
- Label: `gr_instance_id`  
Label Description: GR instance ID  
Example: 1, 2

## SGW TEID Cache Operation Stats Category

### **sgw\_teid\_cache\_total**

Description: SGW TEID cache operation counter

Sample Query: 'sgw\_teid\_cache\_total{action="create"}'

Labels:

- Label: `action`

Label Description: TEID cache operation type

Example: `create`, `update`, `delete`, `cache_found`, `expired`, `no_cache`, `cache_full`

- Label: `gr_instance_id`

Label Description: GR instance ID

Example: 1, 2

## SMF GTPC Echo Stats Category

### **gtpc\_echo\_msg\_stats**

Description: GTPC Echo Req Rx and Echo Resp Tx

Sample Query: 'gtpc\_echo\_msg\_stats{gtpc\_msg\_type="gtpc\_echo\_req\_rx"}'

Labels:

- Label: `gtpc_peer_ip`

Label Description: Gtpc Peer IP of nodes like SGW,ePDG etc

Example: 1.2.3.4

- Label: `gtpc_msg_type`

Label Description: Gtpc Message type

Example: `gtpc_echo_req_rx`, `gtpc_echo_res_tx`

- Label: `interface_type`

Label Description: Gtpc Interface type

Example: S5, S11, S5E, S2B, S8

- Label: `gr_instance_id`

Label Description: GR instance ID

Example: 1, 2

## SMF GTPC Golang Encode Decode Stats Category

### gtpc\_golang\_enc\_dec\_stats

Description: Messages Encoded/Decoded using Golang

Sample Query: 'gtpc\_golang\_enc\_dec\_stats{gtpc\_msg\_type="RxModifyBearerReq"}'

Labels:

- Label: `gtpc_msg_type`

Label Description: Gtpc Message type

Example: NumRxEchoReq, NumTxEchoReq, NumRxEchoRes, NumTxEchoRes, NumRxCreateSessionReq, NumTxCreateSessionReq, NumRxCreateSessionRes, NumTxCreateSessionRes, NumRxDeleteSessionReq, NumTxDeleteSessionReq, NumRxDeleteSessionRes, NumTxDeleteSessionRes, NumRxModifyBearerReq, NumTxModifyBearerReq, NumRxModifyBearerRes, NumTxModifyBearerRes, NumRxDeleteBearerReq, NumTxDeleteBearerReq, NumRxDeleteBearerRes, NumTxDeleteBearerRes, NumTxCreateBearerReq, NumRxCreateBearerReq, NumTxCreateBearerRes, NumRxCreateBearerRes, NumTxUpdateBearerReq, NumRxUpdateBearerReq, NumTxUpdateBearerRes, NumRxUpdateBearerRes, NumRxModifyBearerCmd, NumTxModifyBearerCmd, NumRxModifyBearerFail, NumTxModifyBearerFail, NumRxDeleteBearerCmd, NumTxDeleteBearerCmd, NumRxDeleteBearerFail, NumTxDeleteBearerFail, NumTxChangeNotfReq, NumRxChangeNotfReq, NumRxChangeNotfRes, NumTxChangeNotfRes, NumRxSuspendNotf, NumTxSuspendNotf, NumRxSuspendAck, NumTxSuspendAck, NumRxResumeNotf, NumTxResumeNotf, NumRxResumeAck, NumTxResumeAck, NumTxReleaseAccessBearerRsp, NumRxReleaseAccessBearerReq, NumRxContextReq, NumTxContextReq, NumRxContextAck, NumTxContextAck, NumRxDDN, NumTxDDn, NumRxIDReq, NumTxIDReq, NumRxIDRsp, NumTxIDRsp, NumRxDDNFail, NumTxDDnFail, NumRxCreateIDFTRReq, NumTxCreateIDFTRsp, NumRxDeletIDFTRReq, NumTxDeletIDFTRsp, NumRxBearerResCmd

- Label: `gtpc_msg_len`

Label Description: Message Length

Example: 36, 24, 45

- Label: `interface_type`

Label Description: Gtpc Interface type

Example: S5, S11, S5E, S2B, S8

- Label: `gtpc_msg_operation`

Label Description: Operation

Example: encode, decode

- Label: `gtpc_msg_status`

Label Description: Status

Example: success, error

- Label: `gtpc_msg_status_cause`

Label Description: Error Cause

Example: HeaderDecodeFailure, ParseIEsFromPayloadFailure, MBRFromIEFailure

## SMF GTPC Messages Total Category

### gtpc\_msg\_total

Description: Total GTPC Messages

Sample Query: 'gtpc\_msg\_total{message\_name="S5S8\_MSG\_CREATE\_SESSION\_REQUEST"}'

Labels:

- Label: `message_name`

Label Description: Message Name

Example: S5S8\_MSG\_CREATE\_SESSION\_REQUEST, S5S8\_MSG\_CREATE\_SESSION\_RESPONSE, S5S8\_MSG\_MODIFY\_BEARER\_REQUEST, S5S8\_MSG\_MODIFY\_BEARER\_RESPONSE, S5S8\_MSG\_DELETE\_BEARER\_REQUEST, S5S8\_MSG\_DELETE\_BEARER\_RESPONSE, S5S8\_MSG\_DELETE\_SESSION\_REQUEST, S5S8\_MSG\_DELETE\_SESSION\_RESPONSE

- Label: `message_direction`

Label Description: Direction

Example: inbound, outbound

- Label: `status`

Label Description: Status

Example: no\_rsp\_received\_tx, accepted

- Label: `transport_type`

Label Description: Transport Type

Example: origin, retransmitted

- Label: `interface_type`

Label Description: Gtpc Interface type

Example: S5, S11, S5E, S2B, S8

- Label: `gr_instance_id`

Label Description: GR instance ID

Example: 1, 2

## SMF GTPC Unexpected Messages Category

### gtpc\_app\_total\_unexpected\_gtpc\_msg\_events

Description: Unexpected GTPC Messages received

Sample Query: 'gtpc\_app\_total\_unexpected\_gtpc\_msg\_events{service\_name="gtpc-ep"}'

Labels:

- Label: `message_type`

Label Description: Gtpc Message type

Example: unexpected\_gtpc\_message

- Label: `interface_type`

Label Description: Gtpc Interface type

Example: S5, S11, S5E, S2B, S8

- Label: `gr_instance_id`

Label Description: GR instance ID

Example: 1, 2

## SMF GTPC Validation Fail Stats Category

### **gtpc\_app\_validation\_events**

Description: Stats of Message decode failures

Sample Query: `'gtpc_app_validation_events{service_name="gtpc-ep}'`

Labels:

- Label: `message_type`

Label Description: Gtpc Message type

Example: csreq, csrsp, mbreq, mbrsp, cbreq, cbrsp, ubreq, ubrsp, dbreq, dbrsp, dsreq, dsrsp, mbcmd, mbcfi, dbcnd, dbcfi, ddnfi, ddnack, rabreq, upcreq

- Label: `interface_type`

Label Description: Gtpc Interface type

Example: sgw\_ingress, pgw\_ingress, S5, S11, S5E, S2B, S8

- Label: `failure_type`

Label Description: Failure Type

Example: msg\_validation\_fail, hdr\_decode\_failure

- Label: `hdr_decode_fail_reason`

Label Description: Header Decode Fail Reason

Example: incorrect\_gtp\_version, unsupported\_message, incorrect\_msg\_len, invalid\_msg\_format, invalid\_seq\_no, hdr\_decode\_fail\_reason

- Label: `action_type`

Label Description: Action Type

Example: discarded, rejected

- Label: `reject_cause`

Label Description: Reject Cause

Example: invalid\_msg\_format, version\_not\_supported, invalid\_len, mandatory\_ie\_missing, conditional\_ie\_missing, mandatory\_ie\_incorrect, service\_not\_supported, imsi\_imei\_not\_known, preferred\_pdn\_type\_unsupported, unknown

## SMF GTPC messages Category

### gtpc\_app\_events

Description: GTPC message counter

Sample Query: 'gtpc\_app\_events{service\_name="gtpc-ep"}'

Labels:

- Label: event\_type

Label Description: Gtpc Event type

Example: NumRxCreateSessionReq, NumTxCreateSessionRes, NumRxDeleteSessionReq, NumTxDeleteSessionRes, NumRxModifyBearerReq, NumTxModifyBearerRes, NumTxDeleteBearerReq, NumRxDeleteBearerRsp, NumTxCreateBearerReq, NumRxCreateBearerRes, NumTxUpdateBearerReq, NumRxUpdateBearerRes, NumTxModifyBearerFailureInd, NumModifyBearerTimeout, NumRxDeleteBearerCmd, NumCreateBearerFailure, NumCreateBearerSuccess, NumCreateSessionSuccess, NumCreateSessionFailure, NumDeleteSessionSuccess, NumDeleteSessionFailure, NumCreateBearerReqRetrans, NumUpdateBearerReqRetrans, NumDeleteBearerReqRetrans

- Label: interface\_type

Label Description: Gtpc Interface type

Example: S5, S11, S5E, S2B, S8

- Label: gtpc\_msg\_fail\_cause

Label Description: Contains Gtpc message fail cause

Example: send\_to\_service\_error, nil\_raw\_response, unmarshal\_fail

- Label: gr\_instance\_id

Label Description: GR instance ID

Example: 1, 2

## SMF GTPC priority messages Category

### gtpc\_app\_priority\_events

Description: GTPC priority message counter

Sample Query: 'gtpc\_app\_priority\_events{service\_name="gtpc-ep"}'

Labels:

- Label: event\_type



Label Description: Gtpc Event type

Example: NumRxCreateSessionReq, NumTxCreateSessionRes, NumRxDeleteSessionReq, NumTxDeleteSessionRes, NumRxModifyBearerReq, NumTxModifyBearerRes, NumTxDeleteBearerReq, NumRxDeleteBearerRsp, NumTxCreateBearerReq, NumRxCreateBearerRes, NumTxUpdateBearerReq, NumRxUpdateBearerRes, NumTxModifyBearerFailureInd, NumModifyBearerTimeout, NumRxDeleteBearerCmd, NumCreateBearerFailure, NumCreateBearerSuccess, NumCreateSessionSuccess, NumCreateSessionFailure, NumDeleteSessionSuccess, NumDeleteSessionFailure, NumCreateBearerReqRetrans, NumUpdateBearerReqRetrans, NumDeleteBearerReqRetrans

- Label: `priority_msg`

Label Description: priority

Example: true

- Label: `interface_type`

Label Description: Gtpc Interface type

Example: S5, S11, S5E, S2B, S8

- Label: `gr_instance_id`

Label Description: GR instance ID

Example: 1, 2

## UDP-Proxy Metrics Reference

### UDP-Proxy BGP Routes Count Category

#### `udp_proxy_bgp_routes_count`

Description: UDP Proxy BGP routes added count

Sample Query: `'udp_proxy_bgp_routes_count{service_name="udp-proxy", status="success"}'`

Labels:

- Label: `status`

Label Description: Status of message while sending or receiving

Example: success, failed

### UDP-Proxy Messages Category

#### `udp_proxy_msg_total`

Description: UDP Proxy message counters being recieved or sent

Sample Query: 'udp\_proxy\_msg\_total{message\_name="radius\_request", message\_direction="inbound", status="success"}'

Labels:

- Label: `message_name`

Label Description: UDP messages coming via udp-proxy service

Example: `radius_request`, `radius_response`, `heartbeat_request`, `heartbeat_response`

- Label: `message_direction`

Label Description: Message being sent or being received

Example: `inbound`, `outbound`

- Label: `status`

Label Description: Status of message while sending or receiving

Example: `success`, `failed`